UK-specific appendix to Installation instructions

DHP-A
DHP-A Opti
DHP-AQ Maxi
DHP-H
DHP-H Opti
DHP-H Opti Pro
DHP-L
DHP-L Opti
DHP-L Opti Pro

VIBMB402
086U8255 Rev 4

To be read together with Installation instructions

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1 Important information/Safety regulations

These instructions are a UK-specific appendix to those instructions found in the Installation instructions.

Read the Installation instructions prior to installation.

For **DHP Opti Pro SP** (Single Phase) heat pumps it is imperative that the maximum hot water temperature is altered from the default factory setting from 95°C to 60°C. Refer to Chapter 9.8 menu Service – HGW Parameter MAX TEMP in Installation instructions.

Hard Water Areas; Normally it is not a problem to install a heat pump in hard water areas since the normal domestic hot water working temperature will be not greater than 60°C. In areas where exceptional water conditions prevail, consideration may need to be given to the fitting of a device capable of inhibiting scale. In such circumstances the advice of the local water authority should be sought.

The immersion heater, thermostat, and thermal cut-out are supplied by Danfoss and are factory fitted. If a replacement part is necessary, it must be replaced with a Danfoss spare part.

The water heater is protected with a sacrificial aluminium anode. Under normal circumstances no maintenance is needed.

Note! Leave the following documents with the end-user;
- This manual
- Installation instructions
- User manual

The above documents are an integral and essential part of the product. They should be kept with the appliance so that they can be consulted by the user and our authorised personnel.

Please read carefully the instructions and notices about the appliance contained in this manual, as they provide important information regarding the safe installation, use and maintenance of the heat pump.

1.1 Test results

1.1.1 Heat up time

The heat up time is measured when heating the water from 14°C to 60°C.

DWH 300: Heat up time 1 hour 53 minutes

DHP-H, DHP-A, DHP-AQ Maxi and DWH 200: Heat up time 1 hour 3 minutes

1.1.2 Re-heat time

The re-heat time is measured when 70% of the hot water has been drained and replaced by equal amount 14°C water and re-heated to 60°C.

DWH 300: Re-heat times 70% 1 hour 25 minutes

DHP-H, DHP-A and DWH 200: Re-heat time 70% 41 minutes

DHP-AQ Maxi: 1 hour 6 minutes according to EN12897.

1.1.3 Pressure drop

The measured pressure drop throgh the primary heater is 15 kPa.

1.1.4 Hot water capacity

DHP-AQ Maxi: 160 liter according to EN12897.

2 About documents and labels

2.1 Manufacturer labels

The heat pump and the indoor unit are marked with durable, permanently fixed labels.

2.1.1 Manufacturer label:

P. O. Box 950 SE-67129 Arvika
Sweden

DHP-H 6

Heat Pump

IP 21

Source of heat Max	Mpa	0,3
System of heat Max	Mpa	0,3
Source of heat Min/Max	˚C	-10 / +20
Refrigerant Type		*R407C
Operation Pressure Min/Max	MPa	0,08/3,1
Refrigerant	Kg	1.2

Connection

Electric connection	V	400 3N~50Hz
Power input Total	kW	5,0/8,0/11,0
Power input Heat pump	kW	2.0
Power input Auxiliary Heater	kW	3/6/9

Pressure Vessel

Volume Sec/Prim	l	180/7.5
Design Pressure Sec/Prim	MPa	1.0 / 0.3
Test Pressure Sec/Prim	MPa	1.43 / 0.43
Design Temp	˚C	100

Rating condition EN 14511 (see technical documentation)		B0W35	A2/W35	A7/W35
Heating capacity	kW	5.33	--	--
Coefficient of Performance		4.04	--	--

* This product contains fluorinated greenhouse gases covered by the Kyoto Protocol
--

Serial No 086U5000*testBRE

Model -- YY-WW 09-33

2.1.2 Manufacturer label: DHP-AQ

P. O. Box 950 SE-671 29 Arvika
Sweden

DHP-AQ CONTROL MAXI 6-13 SP

IP x 2

Heat Pump

Source of heat Max	Mpa	0
System of heat Max	Mpa	0
Source of heat Min/Max	˚C	
Refrigerant Type		*
Operation Pressure Min/Max	MPa	--
Refrigerant	Kg	

Connection

Electric connection	V	230 1N~50Hz
Power input Total	kW	3.1/6.1/9.1
Power input Heat pump	kW	
Power input Auxiliary Heater	kW	3/6/9

Pressure Vessel

Volume Sec/Prim	l	180/7.5
Design Pressure Sec/Prim	MPa	1.0 / 0.3
Test Pressure Sec/Prim	MPa	1.43 / 0.43
Design Temp	˚C	100

Rating condition EN 14511 (see technical documentation)		B0W35	A2/W35	A7/W35
Heating capacity	kW	--		
Coefficient of Performance		--		

* This product contains fluorinated greenhouse gases covered by the Kyoto Protocol
--

Serial No 086U0283xxxxxxxx

Model CU-*104-303 YY-WW 11-27

2.1.3 Additional label:

This label will ensure that this product conforms to the
requirements of United Kingdom Building Regulations.
The information is entirely valid in a UK specific installations.

Heat Pump *)	Weight when full (kg)
DHP-H 4	405
DHP-H 6	409
DHP-H 8	409
DHP-H 10	409
DHP-H 12	418
DHP-H 16	422
DHP-A 6	440
DHP-A 8	440
DHP-A 10	440
DHP-A 12	448

*) Incl. DHP Opti and Opti Pro

Maximum water supply pressure	10 bar
Pressure reducing valve	3 bar
Expansion valve	6 bar
Expansion vessel charge pressure	3 bar
Operating pressure	5,5 bar
Temp and pressure release valve	10 bar; 90–95˚C
Maximum primary working pressure	1,5 bar
Immersion heater	D76 / 9 kW / 230 V

WARNING TO THE USER
(a) Do not remove or adjust any component part of this unvented water heater. Contact the installer.
(b) If this unvented water heater develops a fault, such as a flow of hot water from the discharge pipe, switch the heater off and contact the installer.

WARNING TO THE INSTALLER
(a) This installation is subject to building regulation approval, notify the Local Authority of intention to install.
(b) Use only manufacturer's recommended replacement parts.

(c) INSTALLED BY:

Name._____

Address._____

Tel No._____

Completion date._____

2.1.4 Additional label: DHP-AQ Control Maxi 6–13 SP

This label will ensure that this product conforms to the requirements of United Kingdom Building Regulations and EN12897:2006.
The information is entirely valid in a UK specific installation.

Weight when full	286 kg
PT valve replacement no.	086U8267
Oper. temp non self-reset. thermostat	88˚C
Maximum flow temperature	65˚C
Operating pressure heat source	1 bar
Primary heating power input	9 kW
Primary flow rate	0,16–0,31 l/s
Actual capacity	180 liter
Standing heat loss	1,8 kWh / 24 h
Maximum water supply pressure	10 bar
Pressure reducing valve	3 bar
Expansion valve	6 bar
Expansion vessel charge pressure	3 bar
Operating pressure	5,5 bar
Temp and pressure release valve	10 bar; 90–95˚C
Maximum primary working pressure	1,5 bar
Immersion heater	D76 / 9 kW / 230 V

WARNING TO THE USER

a) Do not remove or adjust any component part of this unvented water heater. Contact the installer.
b) If this unvented water heater develops a fault, such as a flow of hot water from the discharge pipe, switch the heater off and contact the installer.

WARNING TO THE INSTALLER

a) This installation is subject to Building Regulations notification.
b) Use only appropriate components for installation and maintenance.

c) INSTALLED BY:

Name._____

Address._____

Tel No._____

Completion date._____

3 Piping installation

3.1 General

In section 5.2 you will find connection diagrams.

3.1.1 Unvented package DHP and DWH200

Danfoss code reference UNV0180.

Package contents:

Position	Danfoss code	Number	Description
110	FITT0050	1	Expansion vessel 19 liter
-	FITT0052	1	Expansion vessel bracket
132	FITT0053	1	Flexible hose
-	FITT0001	1	Tundish 15x22 mm
129	FITT0054	1	Unvented manifold assembly

3.1.2 Unvented manifold assembly

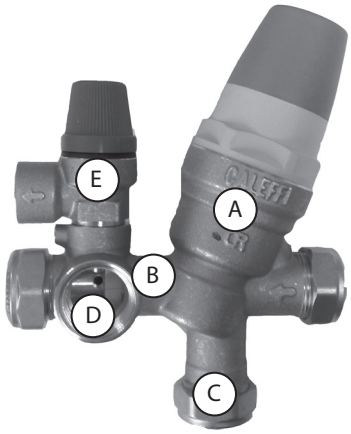

Figure 1. Unvented manifold assembly.

Position	Name
A	Pressure reducing valve
B	Non-return valve
C	Cold water to house
D	To expansion vessel
E	Safety relief valve

3.1.3 Temperature and pressure relief valve

Figure 2. Factory fitted Temperature and pressure relief valve

3.2 System solution

3.2.1 Unvented package installation, DHP-H and DHP-A models

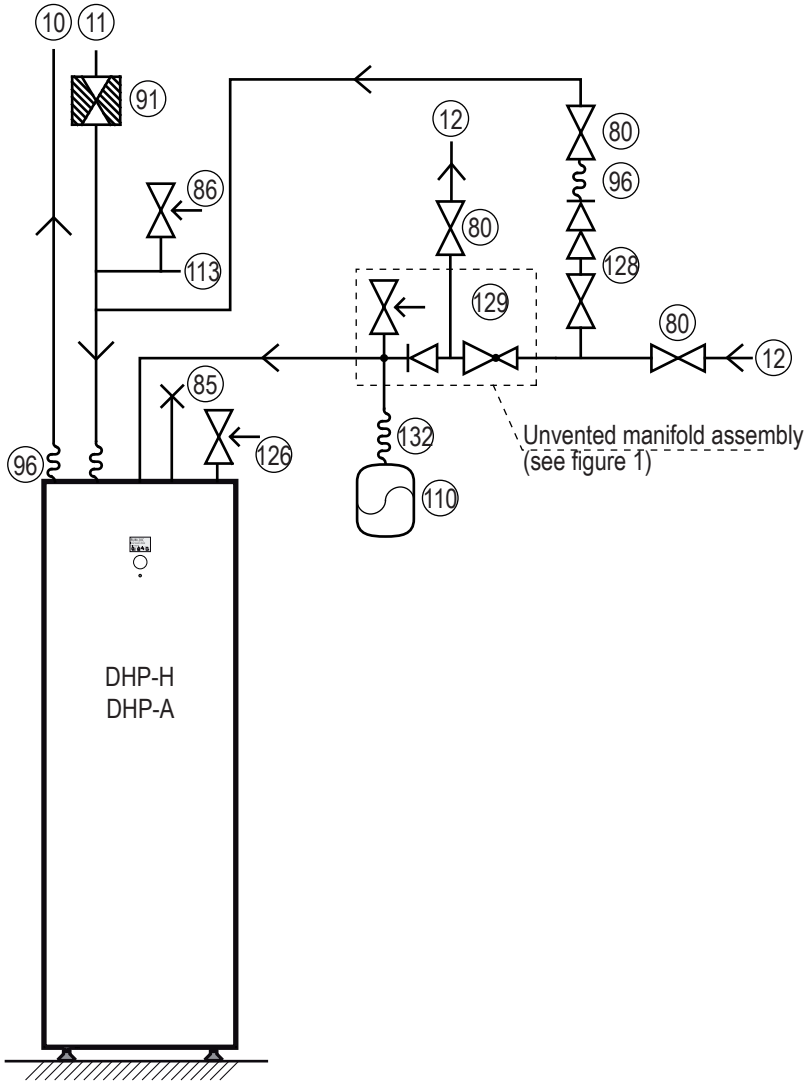

Figure 3. The principal installation solution of the unvented package on DHP-H and DHP-A models.

Position	Name
10	Supply line heating system
11	Return line heating system
12	Cold water
80	Shut-off valve
85	Venting valve
86	Safety relief valve heating system
91	Strainer
96	Flexible hose
110	Expansion vessel
113	Expansion heating system
126	Factory fitted combined Temperature and pressure relief valve*
128	Double check valve with Shut-off valve
129	Unvented manifold assembly: Pressure reducing valve, Safety relief valve, Non-return valve
132	Flexible hose Unvented package

*) The water heater tank in DHP-H and DHP-A models is factory fitted with a Temperature and pressure relief valve. The connection from this valve must not be used for other purposes other than discharge pipe connection. Please see chapter 5.3 Discharge pipe arrangement.

Note! No valve should be fitted between the safety relief valve and the storage cylinder.

3.2.2 Unvented package installation, DHP-L models, DWH 200, DWH 300

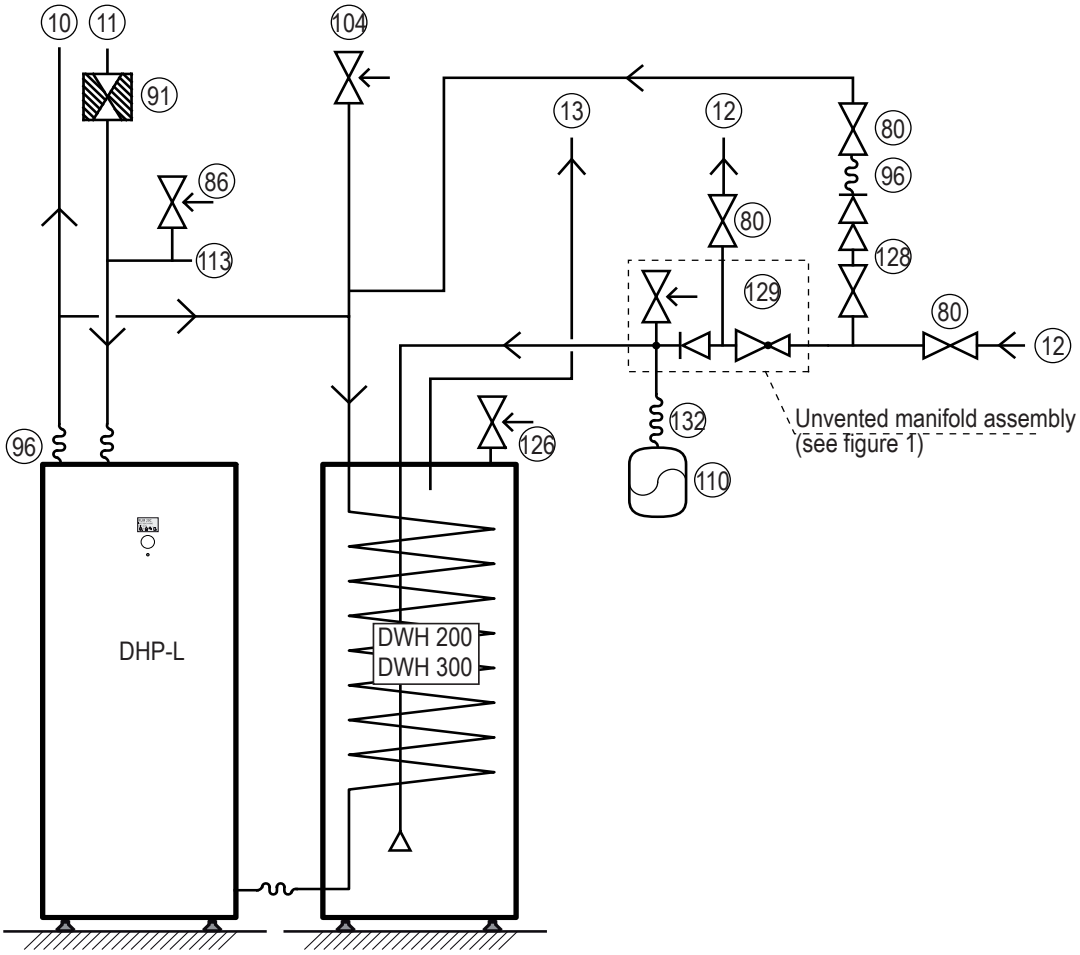

Figure 4. The principal installation solution of the unvented package on DHP-L models together with DWH.

Position	Name
10	Supply line heating system
11	Return line heating system
12	Cold water
13	Hot water
80	Shut-off valve
86	Safety relief valve heating system
91	Strainer
96	Flexible hose
104	Safety relief valve 2,5 bar
110	Expansion vessel
113	Expansion heating system
126	Factory fitted combined Temperature and pressure relief valve*
128	Double check valve with Shut-off valve
129	Unvented manifold assembly: Pressure reducing valve, Safety relief valve, Non-return valve
132	Flexible hose unvented package

*) The water heater tank in DWH is factory fitted with a Temperature and pressure relief valve. The connection from this valve must not be used for other purposes other than discharge pipe connection. Please see chapter 5.3 Discharge pipe arrangement.

Note! No valve should be fitted between the safety relief valve and the storage cylinder.

3.2.3 Unvented package installation, DHP-L Opti Pro models, DWH 200, DWH 300

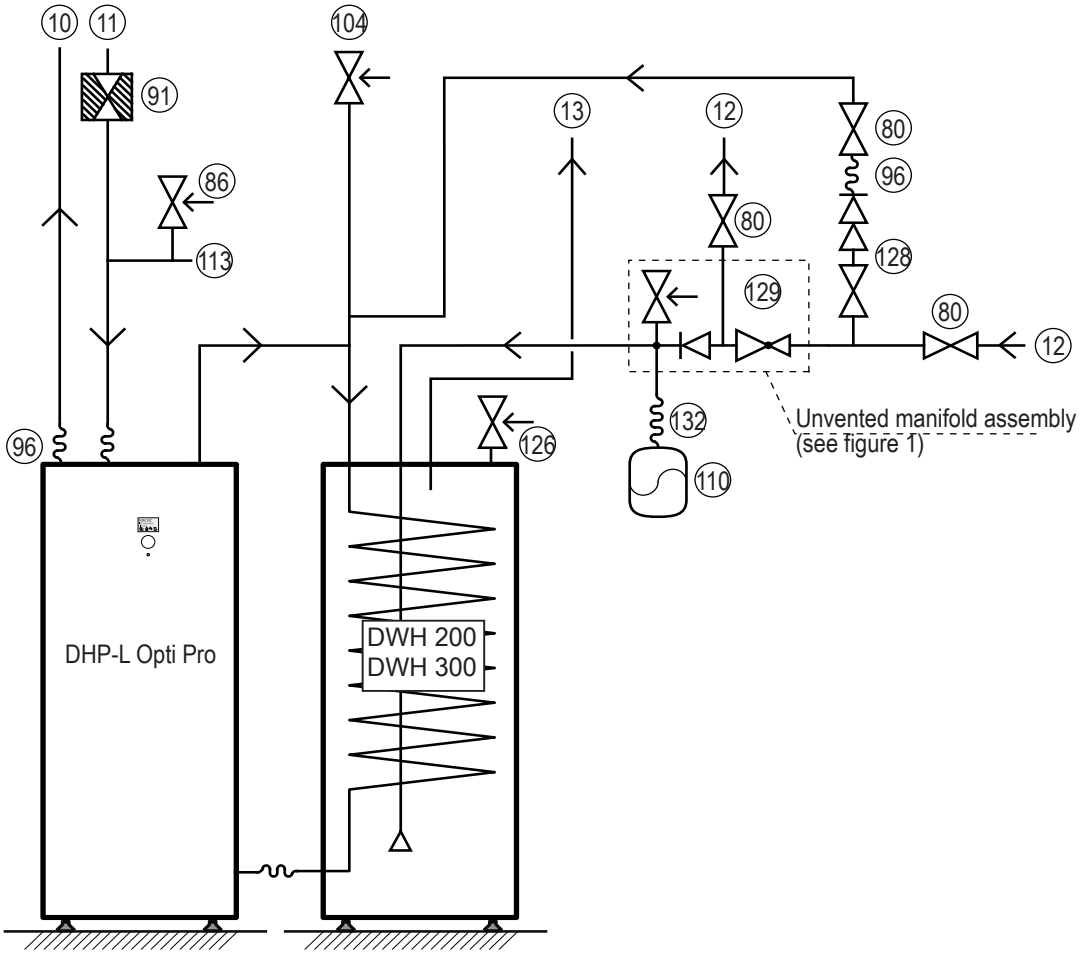

Figure 5. The principal installation solution of the unvented package on DHP-L Opti Pro models with DWH

Position	Name
10	Supply line heating system
11	Return line heating system
12	Cold water
13	Hot water
80	Shut-off valve
86	Safety relief valve heating system
91	Strainer
96	Flexible hose
104	Safety relief valve 2,5 bar
110	Expansion vessel
113	Expansion heating system
126	Factory fitted combined Temperature and pressure relief valve*
128	Double check valve with Shut-off valve
129	Unvented manifold assembly: Pressure reducing valve, Safety relief valve, Non-return valve
132	Flexible hose Unvented package

*) The water heater tank in DWH is factory fitted with a Temperature and pressure relief valve. The connection from this valve must not be used for other purposes other than discharge pipe connection. Please see chapter 5.3 Discharge pipe arrangement.

Note! No valve should be fitted between the safety relief valve and the storage cylinder.

3.2.4 Unvented package installation, DHP-AQ Maxi

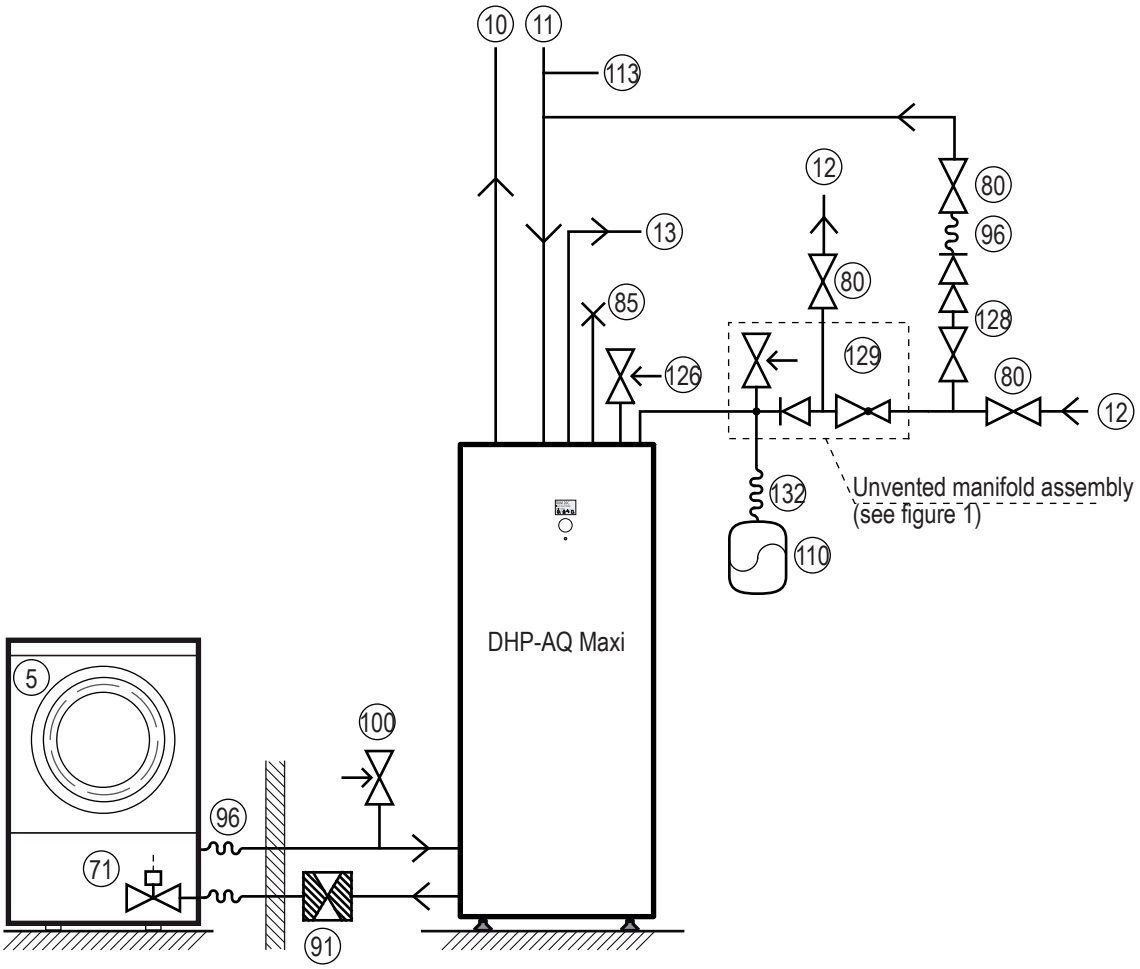

Figure 6. The principal installation solution of the unvented package on DHP-AQ Maxi

Position	Name
5	Heat pump unit
10	Supply line heating system
11	Return line heating system
12	Cold water
13	Hot water
71	Flow guard
80	Shut-off valve
85	Venting valve
91	Strainer
96	Flexible hose
100	Safety relief valve
110	Expansion vessel
113	Expansion heating system
126	Factory fitted combined Temperature and pressure relief valve*
128	Double check valve with Shut-off valve
129	Unvented manifold assembly: Pressure reducing valve, Safety relief valve, Non-return valve
132	Flexible hose Unvented package

*) The water heater tank in DHP-Q Maxi models is factory fitted with a Temperature and pressure relief valve. The connection from this valve must not be used for other purposes other than discharge pipe connection. Please see chapter 5.3 Discharge pipe arrangement.

Note! No valve should be fitted between the safety relief valve and the storage cylinder.

3.3 Discharge pipe arrangement

The tundish must be positioned away from any electrical devices.

The tundish must be installed so that it is visible to the occupants.

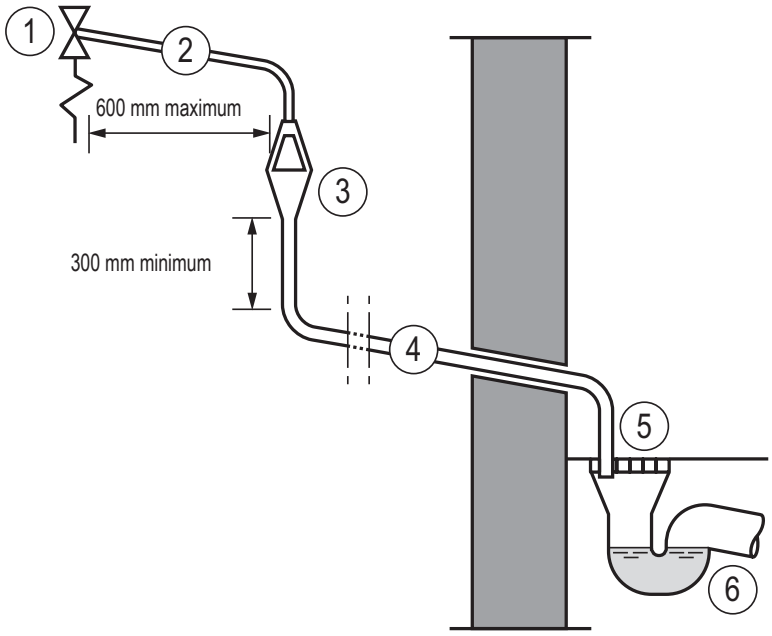

Figure 7. The principal installation solution of the discharge pipe assembly.

Position	Name
1	Safety device (for example, temperature relief valve)
2	Metal discharge pipe from safety device to tundish
3	Tundish
4	Discharge pipe from tundish, with continuous fall (1 in 200)
5	Discharge below fixed grating
6	Trapped gully

Sizing of copper discharge pipe (4) for common temperature relief valve outlet sizes				
Valve outlet size	**Minimum size of discharge pipe (2)**	**Minimum size of discharge pipe (4 from tundish)**	**Maximum resistance allowed, expressed as a length of straight pipe (that is, no elbows or bends)**	**Resistance created by each elbow or bend**
G1/2	15 mm	22 mm	Up to 9 m	0.8 m
		28 mm	Up to 18 m	1.0 m
		35 mm	Up to 27 m	1.4 m
G3/4	22 mm	28 mm	Up to 9 m	1.0 m
		35 mm	Up to 18 m	1.4 m
		42 mm	Up to 27 m	1.7 m
G1	28 mm	35 mm	Up to 9 m	1.4 m
		42 mm	Up to 18 m	1.7 m
		54 mm	Up to 27 m	2.3 m

4 Commissioning

4.1 How to flush the tap water system

When the tap water and the heating system have been filled up, the unit shall be running at maximal, normal operating temperature for a minimum of one hour. After that the tap water system shall be flushed out and re-filled.

4.2 How to drain the tap water system

After the tap water system has been flushed out, the cold and hot water pipes and the water heater tank need to be drained. To drain the system follow the instructions below:

1. Close the shut-off valve on the incoming water supply.
2. Open both cold and hot water taps which are situated as low as possible in the building to depressurise the system.

Please note that there can be some water remaining in the cold water pipe which must be taken care of when loosening the pipe.

3. Loosen and remove the cold water pipe at the top of the heat pump.
4. Insert a plastic hose to use as a siphon into the cold water connection and bring it to the bottom of the water heater tank.
5. Place the other end of the hose near a gully.
6. Use the siphon effect to empty the water heater tank.

For location and dimension of connections, please see chapter 4.1 in the *Installation Instructions*.

4.3 Inspection access

The hot water tapping connection can be used as an inspection access.